U. S. FOREST SERVICE

RESEARCH NOTE NC-60

NORTH CENTRAL FOREST EXPERIMENT STATION, FOREST SERVICE—U.S. DEPARTMENT OF AGRICULTURE

Folwell Avenue, St. Paul, Minnesota 55101

POOR RETURNS FROM OZARK WOODLAND GRAZING

ABSTRACT.—Sixty-three percent of the area in Missouri's National Forests produces forage at the rate of about 50 pounds per acre per year. Forage production on the other 37 percent ranges from a low near 75 pounds per acre in the pine stands to a high of about 200 pounds in the redcedar stands.

Cattle are often allowed to graze wooded areas in the Missouri Ozarks. This practice began when the Ozark region was open range. The question has often been asked, "Is there enough good forage in the woods to warrant the expense of using it and the possible risk of damaging the land for other uses?" This question plagues the National Forest administrator as well as the private landowner in the Missouri Ozarks.

An extensive survey revealed that oak-pine, post-blackjack oak, white oak, and black-scarlet oak stands, which make up two-thirds of the wooded areas in Missouri's National Forests, produce approximately 50 pounds of cattle forage per acre per year (table 1).

A 1,000-pound cow with calf at side requires approximately 50 pounds desirable vegetation per day: only half of this is actually eaten, the rest is made up of plant parts too coarse to eat or trampled. Consequently, a 1,000-pound cow requires 9,000 pounds of desirable vegetation for a 6-month grazing season. Thus, approximately 180 acres of oak-dominated woodland would be needed to feed

Table 1. — *Production of forage in several forest types on National Forest land in Missouri Ozarks*
(In pounds per acre — ovendry)

Forest type	Approximate area (percent)	Grass	Forbs	Total
Redcedar	7	175	26	201
Mixed hardwood	12	66	75	141
Redcedar-hardwood	2	85	32	117
Pine	16	33	43	76
Oak-pine	15	20	32	52
Post-oak--blackjack oak	8	19	32	51
White oak	10	16	32	48
Black-oak--scarlet oak	30	14	26	40
Total	100			

the cow for a 6-month grazing season. Assuming the calf weighed 350 pounds at the end of the season and would bring 30 cents per pound, the gross return to land, labor, management, and capital would be 58 cents an acre per season. This return is small, considering the investment and risk. Although obviously not a detailed profitability analysis, this does indicate a low income.

Pine stands produce approximately 50 percent more forage than the oak types, and would return about 88 cents an acre. Redcedar-hardwood stands would return about $1.36 per acre and mixed hardwood stands of elm, maple, blackgum or ash in creek bottoms would return approximately $1.64 an acre.

Redcedar stands, which occupy only about 7 percent of the area, produce more high quality cattle food than other forest types (table 1) and would carry 1 cow per 45 acres for a 6-month grazing season. Using the same assumptions as before, each acre would return about $2.33 toward land, labor, management and capital. Even this return is low in a commercial operation considering the risks involved.

These data and calculations indicate returns to woods grazing are small on National Forest land in Missouri. Consequently, management for high quality timber should be considered for good timber-producing sites and reduction of tree cover and grass range establishment considered for low volume timber-producing sites, that are presently covered with scrub timber and brush. Research has shown that grass range establishment is possible[1] and profitable[2] on certain specified sites. The problem remaining is to determine which of the many other wooded sites in the Ozarks can be practically and economically converted to grass and which should be left under wooded cover and how both alternatives affect watershed and wildlife values.

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[1] *Crawford, H. S., and Bjugstad, A. J. Establishing grass range in the southwest Missouri Ozarks. U.S.D.A. Forest Serv. Res. Note NC-22, 4 p., illus. 1967.*

[2] *Ehrenreich, John H., and Ralston, Robert A. Forage and timber production alternatives on shallow soils in the Ozarks. Soc. Amer. Forest. Proc.: 80-83, illus. 1963.*

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